ABSTRACT

Spatio-Temporal Modeling to Predict Malaria Cases and Its Control Management in Tanah Bumbu District of South Kalimantan Province

Malaria is the leading cause of death in some countries; there is 40% of the world's population at risk of suffering from malaria every year. One of the data sources in an effort to eradicate malaria disease is the data availability in order to identify the malaria distribution in a region. Geographical distribution map of malaria is very useful in the implementation of malaria intervention plan. In 2007-2012, in Tanah Bumbu district of South Kalimantan Province malaria cases were always founded and tended to have the highest malaria incidence rate among other town/districts in South Kalimantan. The aims of this research were to identify patterns in malaria distribution and dependencies among sub-districts using Moran's I Index. In addition this was also to create the best model with spatio temporal modeling to predict malaria cases in malaria-endemic areas and to develop malaria control management in District of Tanah Bumbu of South Kalimantan Province. The results showed that malaria cases occur mostly from January to June. The pattern of malaria distribution in Tanah Bumbu, based on Moran's I Index, shows the clustered pattern from District of Sungai Loban, Angsana, Simpang Empat, Mantewe, and Kuranji with spatial relationship of surrounding districts. Modeling for malaria cases was conducted for Kusan Hulu, Batulicin, Simpang Empat and Mantewe District with GSTAR application to predict malaria cases in the area.

Keywords: Malaria, Moran's I, Local Indicator of Spatial Autocorrelation, Thematic Maps, GSTAR Model